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PRODUCTIVITY: OBSERVATIONS AND HOLISTIC PERSPECTIVES

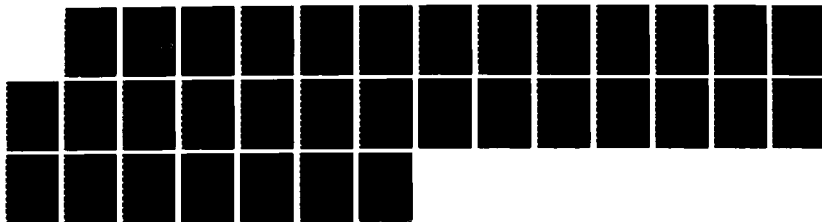
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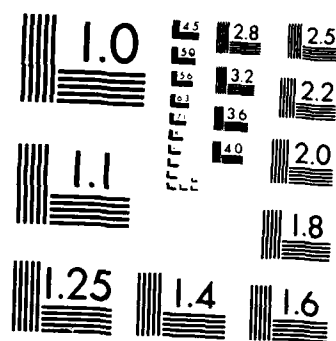
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<p>The research sought to illuminate the subject of productivity. Findings suggest that the subject has not had the benefit of rigorous scientific scrutiny. This study indicates a need for multiple approaches, depending on nature of the organization, its goals and purposes. An extensive bibliography is provided.</p>		

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**AFOSR-TR. 86-2214**

**PRODUCTIVITY: OBSERVATIONS  
AND  
HOLISTIC PERSPECTIVES**

**Final Report  
April, 1984**

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Emeritus Professor of Geography  
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**Report to Air Force Office of Scientific Research  
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## Introduction

This report is based on several years of peripheral research, one year of immersion into the multifaceted arena of productivity, and several years of subsequent study and reflection. Though sponsored by the United States Air Force Office of Scientific Research (AFOSR) under an Intergovernmental Personnel Act arrangement, the task was to examine productivity in a generic sense. The author contacted selected academic, governmental, and service researchers in the field and analyzed numerous reports and studies. Since returning to his academic institution, the author continued to pursue this topic along with his other research efforts and this final shortened version of the report represents holistic perspective and observations on productivity.

## Historic Perspective

— Much of the published research on productivity borrows and builds on assumptions, traditions, parameters, and methodologies evolved in the industrial and business sectors. Input/output and time and motion studies established baseline data for production units, and these were then aggregated for entire factories, offices, companies, or industries. What applied to primary or secondary economic activities were inappropriate to the tertiary sector, governmental agencies, and military productivity. With few exceptions, baseline data for these latter categories must be suspect because of changing missions, alignments, personnel, goals, leadership, priorities, and products. There are different productivity approaches, emphases, and philosophies between and within agencies and organizations.



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Many laws, programs, and practices initiated in the name of productivity and intended to establish meaningful indexes and required of federal agencies contain strong counter productive components or generate wasteful counting and record-keeping justifications. Early productivity research was dominated by industrial engineers, business management specialists, or organizational psychologists. Each group had a favorite emphasis or series of approaches, but all were job or workplace oriented. They either focused on the job to be done, the worker, the work team, training, the work environment, routines and boredom, performance and job satisfaction, relations between workers or between workers and supervisors, management styles, or the cost or profit differences of alternatives.

Later studies added work on motivation, job enrichment, the non-work environment, the quality of the working life, types of recognition and rewards, and their impact on sustained productivity, organizational behavior, and organizational effectiveness.

Despite the broadened coverage, the research still concentrated on small units in the work place to establish experimentally acceptable target and control groups. Consulting firms proliferated to study individual firms or agencies or to institute changes based on research findings elsewhere. Basic research at various universities has tended to be oriented to specific academic disciplines and to underwrite a number of graduate students working towards advanced degrees. Some of the experimental work was done with college students, and the findings extrapolated to unlike situations.

Few studies recognized the impact of changing societal values and life styles, single family households, joint custody situations, and

their impact on absentee rates and one's willingness to relocate, working spouses with congruent or incongruent career objectives, the role of domestic strife, housing, support groups at home and in the community, inflation, family separation, and short and long-term differences.

#### Productivity--Approaches

--It can refer to workers, plants, skills, groups, products, management skills, organizations, systems, or some mix thereof.

--It can reflect a person, team situation, prevailing philosophy or attitude, installation, or institution.

--Assessments can be egocentric--identifying how others may or should alter their behavior but with little or no change in decision-maker behavior, benefits, responsibility, or accountability.

--Increased output per man hour means greater productivity only if the product is needed and it is produced competitively without defects or waste and with long maintenance-free performance.

--Emphasis on productivity may be viewed as a ruse or bargaining device in negotiations or in relocation or dismissal considerations.

--Productivity varies with time and circumstance. Under emergency conditions, maximum output despite high defects or waste may be productive, but if defects and high waste persist after the emergency, then it is counter productive. Thus, war or peace situations or emergency vs. normal operations require different parameters and measurement devices. The need for backup personnel and skills in high turnover situations hampers meaningful measurement.

--Unnecessary jobs or organizations or activities, no matter how well they operate, are counter productive but difficult to eliminate.

--Efficient working units can have their productivity lowered by inept management, obsolete or worn out equipment, demoralizing unnecessary rules or paper work, or the failure of an individual to be properly recognized and rewarded.

--An individual's productivity varies with time, work, and non-work influences. Most people know that they could work harder or more efficiently but rationalize that it is not necessary for them under these circumstances.

--One's productivity is not a linear function but an irregular wave or pulse function--productivity is rarely sustained but rises and falls. Wave depressants reflect an inability to cope with work, at home or in social situations. Common depressants are unsatisfactory home situations, commuting or environmental problems, and career uncertainties. Wave inflators include positive feedback, a sense of accomplishment, enough stress to generate adrenalin surges, acceptance, good home support despite poor work area relations and good work area support, and recognition during stressful home or external situations.

## THE INADEQUACY OF TRADITIONAL MODELS

### Industrial Model

In most studies, productivity is viewed as a measured family of ratios of "output" compared to "input." Private industry is the principal source of productivity models, and the "output" is generally viewed as something that is salable and usable plus the reusable waste, hence useful output. The input generally includes the capital, labor, resources, technology, time, and energy. In the industrial production

model, it is relatively easy to measure "gross" output, though there are problems with such externalities as the social and environmental costs.

The traditional aims were either to increase output per unit input or retain the same output with a reduced input. From this evolved the prevailing measurement approach based on the relationship of output compared to man hours of input. This is more a measure of the effectiveness of management decisions on the allocation of tasks than of worker output, yet this approach persists and it has become the basis for quarterly government statistics relating to productivity. It is discussed later in this report.

### The Tertiary Sector

The thrust of early productivity models is geared to primary and secondary economic activities, but the bulk of our work force in this post-industrial society are employed in the tertiary or service sector. Here the notion of efficiency and effectiveness as service involves the quality, frequency, and reliability of a response which gives output and input a different meaning.

There are some similarities between the production and service models in the administrative side, wherein senior and junior management are judged by different criteria. In academic institutions, a good tertiary example, there are different productivity expectations for young faculty working up the ladder for promotions and tenure and for senior faculty who have already achieved status. In this example, the tenure system reduces the incentive for modestly motivated senior faculty to continue an earlier pace for increased productivity. There may be parallels in civil service and other seniority and titled positions

elsewhere. Continuing the academic example of the service sector, faculty productivity may be viewed in terms of the quality or quantity of their research, knowledge, or communication of subject matter; popularity and large class enrollment; challenging the more able students to do independent research, providing help, encouragement, and support to average or less able or less secure students; teaching content material or analytical techniques or successfully representing one's subject matter, department, or college before community, political, or professional groups. For the past two decades, another productivity factor was the individual's relative success in generating grant money to the department or institution for special programs, research, graduate students, or equipment.

From this one example, devoted exclusively to the work area of job effectiveness, the productivity scope widens considerably and the difficulty of selecting a universal, meaningful, measurement system becomes apparent.

This led to suggest different operational models of productivity for different levels and branches of organizations and the need for different approaches between productions, service, and institutional operations.

Earlier researchers who recognized the need to include non-work area factors sought to relate work productivity to the quality of life (QOL) but ran into difficulty in their search for a quantifiable quality of life data that included environmental, domestic, and social factors. There were significant differences in perception based on personalities and past experiences. This concept was later narrowed to the Quality of Working Life--meaning essentially the work place and it was reemphasized

when Congress, in the 1970's, created the short-lived National Center for Productivity and Quality of Working Life. The federal agency no longer exists but many of the similarly titled state groups still operate as well as a number of private sector consulting groups that provide seminars, workshops, analysis, and recommendations to private companies and governmental agencies. Their thrust is a mix of incentive programs, job motivation, satisfaction and enrichment efforts geared almost exclusively to work place situations.

In the 1970's, additional legislation required federal agencies to measure and improve productivity. Although federal agencies have diverse programs and activities, procedures, requirements, and traditions that affect productivity, there is no truly national productivity policy. Mixed messages seem to prevail. One objective of the federal legislation was to prevent each agency from massaging its data to present a most favorable productivity image. However, the legislation encompasses so many diverse entities that defy conventional measurement that numerous subterfuges have evolved to evade full compliance. Congress requires several counter productive efforts to comply with "productivity" legislation. Monthly reports are standard fare, and some agencies require personnel to maintain personal logs to be ready to provide data or comply with the next request. Affirmative Action, GAO, Equal Opportunity legislation, OSHA, EPA, GSA, the Inspector General, all require different time-consuming compliance forms. Consequently, a defensive posture permeates the system akin to all bureaucracies so that every action can be defended or the blame assigned elsewhere. In large procurement cost overruns, the blame may be assigned to contractors who point to inflation, new labor contracts, or late specification change orders. Rarely are

the political processes or the political leaders blamed. In most new state and federal agency efforts, the costs of new projects tend to be underestimated, the delivery time extended, and the benefits and reliability of the end products somewhat exaggerated.

When dealing with government agencies, one encounters a number of universal laws, directives, suborganizations, and prior programs designed to correct or favor certain situations that existed at a prior time or localized place. They may not be needed universally or currently or they may duplicate other efforts yet they persist, and compliance, though counter productive, is easier than attempting to bring about constructive changes.

Another significant external factor is the politics of budget construction. Every agency spends countless hours in building, prioritizing and justifying their budget requests several years in advance. Strategies may include asking for more than is needed or expected in order to have room for a compromise.

When the budget leaves the agency to compete with the request from other agencies in the political decision-making arena, it may be viewed not as logical evolutionary need, but as jobs that might be delegated to particular Congressional Districts and the possible reelection of the successful political incumbent. In many instances, the people best qualified to advise or make decisions lose out in the long drawn out counter productive political process. Agencies and political action groups may lobby to win support, but their concerns at that point may be more closely related to power, pending contract expansion, interagency rivalry, turf protection, or survival rather than productivity.

Within specific agencies, productivity is altered with changed leadership at several levels. Usually the new leader institutes a number of changes based on his/her view of a better organization and advocates more centralized or delegated authority. Subordinates leave or adapt with pleasure or irritation. Many changes are initiated in the name of productivity, though realignment or reorientation phrereology may be used.

Institutional productivity losses from annual political and intra-governmental confrontations, prioritizing, political, and budgetary exercises are rarely addressed or measured. Institutions, frequently defensive, try to justify themselves to special interest groups, legislators, taxpayers, and monitoring agencies. A sense of tension may prevail. All want to create or maintain an image of being worthy, understaffed, underfunded, responsive, fair, equitable, capable, and productive.

### Training Programs

Government agencies operate many schools and institutes with specialized training programs to produce steady sources of qualified people. To acquire medical doctors or some special skills, the training may be subsidized at private institutions and repaid by several years of service with the agency.

Critics frequently point to the large number of people trained at high cost for specialty skills (pilots, computer and electronic technicians) who then leave the government for more lucrative jobs in the private sector or as employees working for government contractors. Their skills are not lost to the nation, but the prevailing accounting practice insists upon assessing these charges to the institution. The

criticism of these programs can be construed as praise of the excellence of the training that produces skilled and employable people. The problem could be partly resolved with longer enforceable payback time required.

#### Holistic Productivity and the Human Dimension

Most productivity studies deal extensively with limited aspects of the human dimension. If one were to assume a 40-hour work week, that leaves 128 hours a week away from work place. What happens to a worker in that 128 hours would seem to be of equal or greater importance than his behavior with peer, supervisory, and subordinate groups during the 40-hour week. A number of studies confirm the transfer of trauma from home to work and vice versa. People not fully able to cope with the problems at work have a way of bringing them home to infect the entire family, and the reciprocal situation is equally valid. Symptoms of poor coping mechanisms include alcoholism, drug abuse, absenteeism, poor work performance, verbal abuse of subordinates, peers, spouses, children, relatives, neighbors, and even dogs and cats.

In the industrial model of productivity, the pent up aggression may be vented by indifferent workmanship, a high rejection rate or defective end products. In the tertiary sector, it appears in faulty interpersonal relations, and the negative impacts tend to be more widespread. Some agencies and companies have recognized these important human dimension factors and provide diagnostic and corrective programs to improve the physical, social, and cultural qualities of the work and living experience yet respecting the privacy of the individual. Japanese paternalistic industries exhibited holistic tendencies with womb-to-marriage-to-tomb family involvement which has produced a positive feedback loop

and a lifelong sense of company identity and loyalty by the employee and his/her family. Many military programs provide similar benefits for service personnel. Whether the corresponding institutional identity and loyalty exists for most military personnel and their families has been open to some question (Moskos, Feb. 1981).

In the interplay of external forces on productivity, the military role is unique. Like police and fire department personnel, they are expected to periodically expose themselves to great personal danger and possibly the sacrifice of their lives. Additional descriptive conditions result from frequent or extended periods of temporary duty away from families for training, special exercises, or remote duty assignments. Not only do these separations prove stressful for all family members, but new stresses emerge upon the return of the separated household when he/she tries to resume the former influence role that some other member of the family had to assume during the absence.

Periodic family relocation and change of duty stations is becoming a larger problem as the two-income family is commonplace and both inflation and high interest rates make relocation and the sale of a house both difficult and stressful. If the domestic reassignment is to a higher cost of living area, the family cannot demand proportionately higher salaries. If the employed spouse is making significant advancement in a career or job, relocation usually involves accepting a new job closer to the bottom or a long delay period before finding a new comparable position.

The military illustration is not designed to be all inclusive but to show how non-work area situations influence the productivity (work place and retention) of military personnel. To these can be added a

number of other Quality of Life Components that include housing on and off military bases, time and cost of commuting including the friction of distance and traffic congestion, divorce, marital, custody, and children issues, the two-worker family, spousal careers and career priorities, interpersonal jealousies, domestic role reversals in the sharing of stereotyped male/female responsibilities, problems of foreign-born spouses, cross-cultural associations (Turner 1980), minorities, moonlighting, pressures for additional education, including degrees, and planning for a post military second career.

To focus productivity studies and measurement and organizational evaluation to the work area, performance on the 40-hour week addresses only a segment of the total process. The holistic approach involves the 168 hour week.

Other considerations--random observations. Recognition and Reward systems are well established in our society. These run the gamut from news stories, sometimes with pictures, through plaques, cups, framed awards with elitist types and signatures and imposing titles, special uniforms, decorations, ribbons, cash awards, trips, and promotions. Thus, advancement, promotions, and fringe benefits are sought to anchor the rewards for satisfactory prior performance. There is no assurance of continuing high performance,, but traditions and agreements make it difficult to remove the established rewards for mediocre or less-than-adequate performance. If losses are incurred in the private sector, some job shrinkage results but few individuals willingly accept pay cuts and security or job priority clauses come into work contracts or stock options or "parachute" arrangements become commonplace with mid and upper management.

Government cut-back responses have been towards more contract maintenance efforts and downgrading certain positions, but seniority and job classification regulations, rather than worker productivity, seem to be the basis for decisions. Again, the academic example is used. A professor or teacher may earn tenure and several promotions with six to ten years of highly productive work but can then generally coast for the remainder of a career without challenge. This pattern is slowly starting to change, but the illustration is still essentially valid. For some promotions and rewards may come from impressing the proper persons with authority, conformity, or by remaining neutral or low key during stormy controversies. Physical appearances, affiliations, strong supporters, spousal roles and community activities may also be factors--all unrelated to productivity yet part of a holistic appraisal.

#### Evaluating Productivity

Productivity must be evaluated by external investigators who are familiar with similar systems and privy to information on all aspects of an operation. People cannot be objective investigators in systems in which they are full-fledged members, have vested interests, or possible peer relationships (Alderfer 80-5-1980).

Self evaluations by organizations are beneficial but rarely can they be regarded as valid measures. In tight hierarchies, such as military organizations, even the self evaluation loses credibility as those lower in the hierarchy tend to echo sentiments of the existing leadership.

Measurement should always deal with comparable data, and organizations seem to be undergoing technical and personnel shifts thereby

limiting the significance of the results. One must be equally cautious in dealing with federal statistics including the quarterly announcements of the National Index-of-Labor Productivity. This is an "index of output per hour of all persons in the private business economy." It is a fairly reliable indicator of trends in real hour earnings which pay for improvements in our material standard of living. When viewed against changes in nominal earnings per hour, the index points up trends in unit costs. Through short hand, it has come to be known as the Index in Labor Productivity, and that is the source of much confusion. Although the index does not pretend to measure how well workers work, there are enough people who misinterpret any drop in the index to erroneously conclude that there has been a demise in the national work ethic (Zager 1980). During the 1982 recession, with mass layoffs and a tightening of many companies in both white and blue collar categories, there were significant increases in the index but little news coverage about it. The Federal Index tells not how productive workers are but how productively employers use them. It is employers and managers, after all, who determine which resources are combined in what ways to produce goods and services. Nothing is more common than to find workers conscientiously and effectively performing unnecessary jobs. A well-run organization raises productivity by eliminating such jobs and if possible, training and reassigning the job holders to needed work.

SELECTED PRODUCTIVITY READINGS      JUNE 1980-MAY 1981

- Adams, Lt Col John R. and Askren, Dr William B., AFHRL, "White Paper on Productivity of Air Force Personnel", AFHRL, Oct 78 in Look Forward Twenty Years, Vol I, Director of Science & Technology, Mar 80.
- Alderfer, C.P. The Methodology of Diagnosing Group and Intergroup Relations in Organizations. ONR Report CPA 80-5, June 80.
- Alderfer, C.P. Group and Intergroup Relations in Living Human Systems, ONR Study 80-11.
- Alexander, R.A. et al. The Relationship Among Measures of Work Orientation, Job Attribute Preferences, Measures and Abilities, Tech Report #7, Aug 75 (ONR contract to U of Akron).
- Anderson, Susan and Zimbardo, P. On resisting Social Influence, ONR. Tech Report 2-79-01, 30 pages, Sep 79.
- Barrett, G.V. and Dambrot, F.H. Final Report, Field and Laboratory Studies for Increasing the Intrinsic Reward Value in Navy Jobs and Careers, Tech Report #8, ONR Contract of U of Akron, 31 Aug 75.
- Barrett, G.V. et al. The Relationship Between Individual Attributes and Job Design: Review and Annotated Bibliography, ONR Tech Report #6, ONR Contract to U of Akron, Aug 75.
- Berg, Ivar, ed. The Business of America, Harcourt Brace.
- Berg, Ivar, Freedman Marcia and Freeman, Michael. Managers and Work Reform, Free Press, MacMillan, NY, '78.
- Blood, M.R. Self Rewarding and Task Performance: Internal and External Criteria, ONR Org Eff. (Georgia Tech) ONR TR 2, May 77.
- Booher, R.H., Job Performance Aids: Research and Technology State-of-the-Art, Nav Per R&D Cent. Tech R. 78-20-July '78.

- Borack, J. and Govindan, M. Projections of the U.S. Population of 18 Year Old Males in The Post 1993 Period, NPRDC TR 78-16 Mar. 78.
- Bower, David Glenn and Franklin, J. L., "American Work Values and Preferences," Univ. of Michigan Business Review, Mar. 1977, pp. 14-22.
- Bozeman, Barry and Cole, E. (Syracuse U.-Maxwell School). Public Managers and Scientific and Technical Information, ONR Tech Report No. 7, Sept. 1980. (in Administration and Society, 1981).
- Bozeman, Barry and McGowan, Robert. Bounary Spanning and Perceived Political Environments in Technologically-Intensive Public Agencies, ONR Tech Report No. 8, Sept. 1980.
- Bretton, Gene E. et al. A Performance-Contingent Rewrod System That Uses Economic Incentives: Preliminary Cost-Effectiveness Analysis, Navy Pers. and Dev. Center, San Diego. Feb. 1978. NPRDC-TR-78-13 (Civil Sertice data transcribers).
- Broedling, Laurie A. et al, ed. "An Examination of Productivity Impediments in the Navy Industrial Community," NPRDC Special Report 81-2, Oct. 1980.
- Carr, M/Gen R. (Chaplain), Orthmer, Dennis and Brown, Maj. Rich. "Living and Family Patterns in the Air Force," Air University Review, Jan. 1980.
- Chayes, Antonia H. "AF Military Women," Supplement to AF Policy Letter for Commanders, No. 10 '77, pp. 30-32. (Good!)
- Cooper, R.V.L. The President's Commission on Military Compensation: A Review, Rand Paper Series, Nov. 1978, p. 6260.
- Crandall, K. C., ed. Workshop for the Formulation of Specific Projects in Productivity Research for the Construction Industry (Held- Nat'l Bureau of Standards, Md., May 15-17, 1978 NSF Contract APR 7719979 - C.E. Dept. U.C. Berkeley). Tech Report No. 5, July 1978.

- Crawford, K. S. et al. "Improving the Productivity of Low Performers: An Intervention Case Study on a Navy Ship," NPRDC TR 80-20, April 1980.
- Csikzentmihalyi, Mihaly. *Beyond Boredom and Anxiety*, Jossey Bass, 1975.
- Cummings, Larry L. and Schwab, D. B. *Performance in Organizations*, Scott Foresman, Col, Glenview, IL 1973.
- Cummings, L. L. *The Importance of Processes and Contexts in Organizational Psychology*. ONR Contract (E. Res) Sept. 3, 1980.
- Cummings, L. L. and Dunham, R. B. *Intro to Organizational Behavior: Text and Readings*. Irwin, Homewood, Ill. 1980.
- Cummings, Thomas G., and Molloy, E. S. *Improving Productivity and the Quality of Work Life*, N.Y., Praeger, 1977.
- Cummings, Thomas G. and Srivasta, Suresh. *Management of Work, A Socio-Technical Systems Approach*, Kent State Univ. Press, Kent, O. 1977.
- Davis, James C. "The J-Curve of Rising and Declining Satisfaction as a Cause of Some Great Revolutions and a Contained Rebellion," a chapter in H. D. Graham and T. R. Geur (eds), The History of Violence in America, NY, Bantam Books, 1970 (Davis article pp. 690-730).
- Derr, G. Brooklyn. "Marriage/Family Issues and Wife Styles across Naval Officer Career Stages: Their Implications for Career Success." Navy Post Graduate School, Monterey, July, 1979. (NPS 54-79-003).
- Dichter, Ernest. *Getting Motivated* (autobiography), Pergamon Press, 1979.
- Dichter, Ernest. *Motivating Human Behavior*, McGraw Hill, NY, 1971.
- Dockstader, Steven L. et al. *The Effects of Feedback and An Implied Standard on Work Performance*, NPRDC TR 77-45. Sept. 1977.
- Downey, J. C. T., *Management in the Armed Forces, An Anatomy of the Military Profession*, McGraw Hill (UK) Ltd. (Date?)

Downs, Anthony. Inside Bureaucracy, Rand Institute Research Project, Bobbs Merrill, 1967. (Includes laws of bureaucracy).

Dreyfack, M. "Five Surefire Ways to Undermine Productivity," Supervisory Management, Oct. 1980, pp. 35-40.

Duffy, N. F. Changes in Labour-Management Relations in the Enterprise, Paris, 1975. OECD Organ. for Econ. Coop. and Development.

Durning, Kathleen and Mumford, Sandra. Differential Perceptions of Organizational Climate Held by Navy Enlisted Women and Men. NPRDC TR 76 TQ 43, Aug. 76.

Emery, Fred and Emery, Merrellyn. A Choice of Futures InH' Series on the QWL, Leiden, Martinus Nijhoff social science Div., 1976.

Estall, R.C. and Buchanan, R. O. Industrial Activity and Economic Geography, Hutchinson Univ. Library, London, 1961.

Farkas, A. J. Selective Retention: A Longitudinal Analysis, Section III A Comparison of Recruit Training Attrites, Delayed Graduates and Graduates, NPRDC TR 81-3, Dec. 1980.

Farrell, N. G. Heirarchical Clustering: A Bibliography, NAV Personnel and Training Res. Prog., ONR TR 1 July 75.

Fisher, C. D. and Pritchard, R. D. Effects of Personal Contraol, Extrinsic Rewards, and Competence on Intrinsic Motivation, AFHRL TR 78-20, Brooks AFB, July 78.

Forbes, Rosalind. Corporate Stress, 1979. Garden City, NY, Doubleday/Dolphen.

Forbes, Rosaline. Life Stress, 1979, Garden City, NY, Doubleday/Dolphen.

Gansler, Jacques S. Diminishing Power, The Defense Industrial Base (Copyrighted by Gansler but reproduced by DFEEM - 1980, USAFA).

Gansler, Jacques S. The Defense Industry, MIT Press, Cambridge, MA, 1980 (Good!)

- Garg, Arun. "Methods for Estimating Physical Fatigue," Proceedings 1979 Spring Conf. on Optimizing Environments, pp. 68-75. Emphasis is for physical jobs. Relates to advance estimates as a basis for hiring and job placement.
- Gates, Ed. "Not by Bread Alone," Air Force Magazine, Oct. 1977, pp. 60-63.
- Gault, William S. "Planning and Managing a Corporate Group Move," Personnel Administrator, Feb. 1978, p. 32.
- Ginzberg, Eli. The Manpower Connection, 1975. Cambridge-Harvard U. Press.
- Gissler, Sig. "Productivity in the Public Sector: A Summary of a Wingspread Symposium, Public Admin. Review, Nov/Dec 1972, pp. 840-850.
- Glass, David C. et al. "Stress, Type A Behavior, and Coronary Disease," Weekly Psychology Update, Vol. 1, no. 1, 1980, pp. 1-7.
- Glover, F. et al. (U of Texas) A Policy Evaluation Model and Prototype Computer-Assisted Policy Evaluation System for Naval Personnel Management, NPRDC TR 77-27, April 77.
- Goodman, Paul S. Quality of Work Projects in the 1980's (Grad School of Industrial Eng., Carnegie-Mellon) ONR Report #2 (Org. Eff. Res.), Aug. 1980.
- Goodman, P. and Pennings, J. Toward a Framework of Organizational Effectiveness (Grad School Industrial Org. Carnegie-Mellon) ONR Cont Report 2 (summaries of papers), Aug. 9, 1976.
- Gray, Daniel H. Organizational Productivity: The Human Dimension, Arthur D. Little, Inc. Undated, 21 p. (in Arizona State Univ. Productivity Center Packet).
- Greenberger, D. B. et al. Personal Control at Work: Its Conceptualization and Measurement, (Grad. School of Business, U. of Wisc.) Off. Org. Eff. ONR Report 1-1-4, Feb. 1981.

- Guyse, Barry D. "RMS 1977 - Encouraging Management Growth and Productivity,"  
Air University Review, Sept-Oct, 1978, pp. 81-85.
- Hackman, J. Richard. The Design of Work in the 1980's. School of Organization and Management, Yale Univ., ONR Tech Report 15, Feb. 1978.
- Hage, Jerald. "An Axiomatic Theory of Organizations," Administrative Science Quarterly, (Dec. 1965), p. 305.
- Hendrix, W. H. and Halverson, V. B. Organizational Survey Assessment Package for AF Organizations Org. and Manpower Res. Div., AFURL, Brooks Report AFHRL-TR 78-93, Feb. 1979.
- Hendrix, Lt. Col. W. Hurley and Lloyd, Maj. Russell. An Evaluation of the Joint Work Improvement Advisory Council, San Antonio Air Logistics Center, April, 1980.
- Herzberg, Frederick I., and Miner, M. W. "Monitoring Job Enrichment," Defense Management Journal, 1980, vol. 16, No. 2, pp. 30-37.
- Huseman, Richard, et al. Strategies for Improving USAF Productivity: Developing Methodologies for Assessing the Potential Relationship between Communication Behaviors and Productivity (Univ. of GA, Dept. of Management, Athens, GA 30602), Final Report to AFOSR, Sept. 1, 1980, Contract F 49620-79-C-0081.
- Katzell, Mildred E. "Productivity: The Measure and The Myth." AMACON 1975.
- Katzell, R. A., et al. Work Productivity and Job Satisfaction, The Psychological Corp., Harcourt B. and J., 1975.
- Katzell, R. A. et al. A Guide to Worker Productivity Experiments in the United States, 1971-75.
- Keane, James M. "Minimizing People Problems in a Group Move Situation," Personnel Administrator, Feb. 1978, p. 44.

- Ketterberg, R. et al. Organizational and Individual Characteristics, Organizational Climate, and Job Attitudes: A Multivariate Investigation of Responses at Individual and Group Levels of Analysis (Psych. U. of IL) Org. Eff. Res. ONR 77-1, Feb. 1977.
- Kim, C. et al. The All Volunteer Force: An Analysis of Youth Participation, Attrition and Re-Enlistment, Center for Human Resource Res., Ohio State, May, 1980. DOD funding, 152 p.
- Kimblin, C. W. and Souder, W. E. "Maintaining Productivity as Staff Half-Life Decreases," The International Journal of Research Management, Vol. XVIII, No. 6, Nov. 1975, pp. 29-35.
- Landrum, Cecile. Speech given at Seminar on the Military Family. Preceeding meeting of National Council on Family Relations, Portland, OR, 10/20/80.
- Larson, Reed and Csikzentmihalyi, Mihaly. The Significance of Solitude in Adolescents' Development, JCAM, Aug. 1980, pp. 33-40.
- Laski, Marghanita. Exstasy: A Study of Some Secular and Religious Experiences, Bloomington, Indiana Univ. Press, 1961.
- Latham, G. P. et al. The Effects of Participation and Goal Difficulty on Performance (U. of Wash. Psych.) Off. Org. Eff., ONR TR GS-6, Feb. 1981
- Lathan, G. P. and Marshall, N. A. The Effects of Self Set, Participatively Set and Assigned Goals on the Performance of Government Employees (Grad. School of Bus. Admin., U. of Wash.) Org. Eff. Res. Prog. ONR Contract, TR Report GS-5, Jan. 1981.
- Latham, G. P. and Saari, Lise M. Improving Productivity through Goal Setting: with Union Workers, Org. Eff. Res. ONR (U. of Wash. Grad. School of Business Administration), Tech Report GS-7, April, 1981.
- Lawler, E. E. III. Motivation: Closing the Gap Between Theory and Practice, ONR, Aug. 1979, 29 pages. Bettelle, Seattle, HARC-422-044.

- Letsky, M. et al. Integrated Military-Civilian Workforce Analysis and Planning, Res. Report 28, Office of Civilian Manpower Management, Navy Dept., Wash., D. C., Aug. 1976.
- Lindell, M. K. and Walsh, J. T., Drexler, J. A., and Lawler III, E. E. Effects of Technology on Experienced Job Characteristics and Job Satisfaction. (Batelle Human Affairs Res. Centers Study, Seattle) for ONR, Org. Effectiveness, July, 1980, 85 pages. Battelle Cit. BHARC 422/80/019 DNC No. 170-841.
- Locke, Edwin A. et al. Goal Setting and Performance, 1969-1980, GS-1 ONR Contract, June, 1980. Tech Report NR '70-890.
- Locke, Edwin A. Goal Setting, ONR Report No. GS-4, Sept. 1980, Tech Report, NR-170-890.
- Locke, Edwin A. The Ideas of Fred W. Taylor: An Evaluation, July, 1980, ONR GS 3.
- Lyman, Porter W. and Angle, H. L. Manage.-Organization Linkages: The Impact of Changing Work Environments, ONR, Nov. 1979, Tech Report 20.
- Mark, Hans M. "Productivity, Technology and the Illusion of the Free Lunch," Defense 80, August Issue, pp. 8-13.
- Masterson, T. R. and Mara, T. G. Motivating the Underperformer, American Management Assn Bulletin No. 130, 1969.
- Malman, Seymour. "Productivity in American Industry is Deflated," Defense Management, Journal, Vol. 15, No. 2, March-April, 1979, pp. 3-6.
- Moos, R. H. Evaluating Educational Environments, Jossey-Bass, (URES/Drums, Classes, Drinking), 1979.
- Moos, R. H. The Human Context, Environmental Determinants of Behavior, John Wiley, Interscience, 1976.
- Moskos, Charles. An Informal Report on Some Personnel Issues in the Air Force, Report of MAC Mission Observer, Aug. 10, 1980 (available from author, Soc. Dept., Northwestern U.)

- Moskós, Charles. Institution vs. Occupation: Contrasting Models of Military organization, AFOSR Final Report, Feb. 1981.
- Mowday, R. T. et al. The Measurement of Organizational Commitment: A Progress Report (Grad. School of Management, U. of OR) Org. Eff. Res., ONR TR-15, July, 1978.
- Mundel, Marvin E. Measuring and Enhancing the Productivity of Service and Government Organizations, Asian Productivity Organization, Tokyo, 1975, printed in Hong Kong. Inter-Lib. Loan, Colo. State Library, Denver.
- Nebeker, D. et al. Military Productivity and Work Motivation: Conference Recommendation navy Personnel, R & D Center, San Diego, Dec. 1978.
- Newmann, I. and Abrahams, N. Empirical Weighting of Predictors for the Naval Academy Selection Program, NPRDC TR 76-37, June 1976.
- O'Connor, Michael G. RADM, USN (Ret.) and Brown, David S. "Military Contributions to Management," Defense Management Journal, Vol. 16, No. 2, 1980, pp. 50-57.
- Pope, L. T. and Meister, D., Eds. Symposium Proceedings - A Productivity Enhancement: Personnel Performance Assessment in Navy System, Oct. 12-14, 1977, NPRDC issue (7 papers).
- Parnes, S. Productivity and The Quality of Working Life, Work in America Inst., Studies in Productivity #2, Scarsdale, NY, 1978.
- Pritchard, R. D. et al. Comparison of Published Measures of Job Satisfaction on A Taxonomy of Job Rewards (Purdue Res. Foundation), AFHRL TR 78-21, Brooks AFB, July, 1978. (Very Good).
- Pritchard, Robert D. and Montagno, Ray V. "Effects of Specific vs. Non Specific and Absolute vs. Cooperative Feedback on Performances and Satisfaction, Purdue Research Foundation, AFHRL, Occupation and Manpower Res. Div., Brooks AFB, TX, May 1978, (Final report).

- Pritchard, Robert D. et al. Enhancing Productivity through Feedback and Job Design, Dec. 1977. AFHRL Contract F33615-77-C-0026.
- Pritchard, R. D. et al. Enhancing Productivity Through Feedback and Job Design, AFHRL TR 78 44, Aug. 1978, Occupation and Manpower Res. Div., Brooks AFB, TX.
- Ramirez, M. et al. Multicultural Leader Behaviors in Ethnically Mixed task Groups (Systems and Evaluations in Ed. Inc. E. Santa Cruz, CA), Org. Eff. ONR TR 3-80, March 15, 1980.
- Recio, Manuel. A Pilot Study to Ascertain the Attitudes of Navy Recruiters and Hispanic Youth towards The Recruitment of Hispanics in The U.S. Navy, Oct., 80.
- Rimland, B. and Larson, G. The Manpower Quality Decline, NPRDC, Tech. Note 81-4, Nov. 1980.
- Robertson, D. W. and Pass, J. J. Relation of Officer First Assignment and Education Major to Retention, NPRDC TR-79-12, Mar. 79. (Good!).
- Ross, Joel E. Managing Productivity, Reston Pub. (Prentice-Hall,) 1977.
- Rysberg, Jane. Reward Vs. Reinforcement (Ohio State Psych. Dept.), AFOSR Contract, Jan. 1981.
- Sands, W. A. and Abrahams, N. M. Vocational Interests and Their Relationship to Academic Major At the U. S. Naval Academy, NPRDC TR 77-30, April 1977.
- Scemone, Diane. A guide to Technology Transfer, Europe (Magazine of the European community), No. 220, July-Aug., 1980, pp. 24-5.
- Schlenker, B.R. and Miller, R. S. Style of Group Interaction, Anonymity and Group Performance as determinents of Egocentric Perceptions, ONR Tech Report 76-4, Sept. 1976, (Organizational Effectiveness Research Project).
- Schmid, J. P. et al. Optimization in Military Personnel Management, NPRDC TR 77-14, Jan. 1977.
- Schneider, Ben. Person Situation Selection Research: The Problem of Identifying Salient Situational Dimensions (Dept. Psych., U. of MD), Personnel

- Schneider, Ben. Person/Situation Selection Research: The Problem of Identifying Salient Situational Dimensions (Dept. Psych. U. of MD), Personnel and Training Res., ONR Res. Rep. 13, Feb. 1977 (Good!).
- Scott, John. Developing an Instrument for Measuring the Attitudes of Hispanics in the Navy: A Pilot Study (Merit, Coll. of Ed. Temple U.), Org. Eff. ONR Report MC1-3, Nov. 1980.
- Seashore, Stanley, E. "On the Quality of Working Life," 14 p. mimeo, Mich. Inst. for Social Research, Dec. 18, 1977.
- Shumate, E. C. et al. Performance Contingent Reward System: A Field Study of Effects on Worker Productivity, NAVPER, R & D Center, TR 78-20, May 1978.
- Skees, Robert D. "Taking Account of Human Resources in DOD," Defense Management Journal, 1980, Vol. 16, No. 2, pp. 26-29.
- Sorenson, S. W. and Willis, R. E. Input-Output Analysis in Navy Manpower Planning, NPRDC TR 77-26, April, 1977.
- Strauss, G. et al, (ed.). Organizational Behavior - Research and Issues. Wadsworth, Belmont, CA, 1976.
- Strauss, George et al. Organizational Behavior: Research and Issues, Belmont, CA, Wadsworth Pub., 1976.
- Streufert, S. et al. Stress and Incongruity Theory: Effects of Crowding (Hershey Med. Center-Beh. Sci. Hershey, PA), Org. Eff. Res. ONR TR #1, Jan. 1981.
- Terborg, J. R. and Davis, G. A. Evaluation of a New Method for Assessing Change to Planned Job Redesign as Applied to Hackman and Oldham's Job Characteristic Model (Grad. School of Management, U. of Oregon), Org. Eff. Res. ONR Tech Report 80-6, Dec. 1980.
- Terborg, J. R. and Komocar, J. M. Management Practices Environmental Characteristics and Organizational Performance (Grad. School of Management, U. of OR), Navy Org. Effectiveness, ONR TR 81-8, Feb. 1981.

- Terborg, J. R. and Shingledecker, P.S. (Unionization Activities as A Function of Employee Job Attitudes, Management Practices and Social Economic Factors (Grad. School of Management, U. of OR), Navy Org. Eff., ONR TR 81-7, Feb. 1981.
- Thayer, Frederick C. "Productivity: Taylorism Revisited (Round Three)," Public Administration Review, Nov/Dec 1977, pp. 833-840.
- Thompson, James D. Organizations in Action, McGraw Hill, NY, 1967.
- Tolbert, William et al. Productivity and the Officer Force, Air War College Professional Study, Report 5587, April, 1974, Maxwell AFB, Ala.
- Tumin, Melvin. "Business As A Social System," Behavior Sciences, April, 1964.
- Turney, J. R. and Cohen, S. L. The Development of a Work Environment Questionnaire (WEQ) For the Identification of Organizational Problem Areas in Specific Army Work Settings, ARI, June 1976, Techpaper 275.
- Turner, Susan. A Model to Predict Retention and Attrition of Hispanic-Americans in The Navy (Merit Center, Col. of Ed., Temple U.), Org. Effectiveness, ONR MC1-1, Oct. 1980.
- Tuttle, Thomas C. "Managers Guide to Productivity Improvement Resources And Programs," Contract No. F-33615-79-C-0019 - Human Resources Lab., Brooks AFB.
- Umstot, Dennis. Organization Development Technology and The Military: A Surprising Merger? Academy of Management Review, 1980, Vol. 5, No 2, pp. 189-201.
- Umstot, Lt. Col. Dennis and Rosenbach, Lt. Col. Wm. "From Theory to Action: Implementing Job Enrichment in the Air Force," Air University Review.
- Umstot, D. D. et al. "Goal Setting and Job Enrichment: An Integrated Approach to Job Design," Academy of Management Review, Oct. 1978.

- Umstot, Dennis. "MBO and Job Enrichment: How to Have Your Cake and Eat It, Too," Management Review, Vol. 66, Feb. 1977, pp. 21-26.
- Wanous, John P. The Entry of Newcomers into Organization, Dept. of Psych. Mich. State U., E. Lansing, MI 48824, Research Report No. 1, Sept. 1980, ONR Study (to become part of J. R. Hackman et al, Perspectives on Behavior in Organizations, McGraw Hill, 1981).
- Watson, T. W. Job Enrichment: Evaluation with Implications for Air Force Job Redesign, AFHRL TR 77-56, Oct. 77, Occupation and Manpower Res. Div., Brooks AFB. (Good!).
- Weddle, Peter D. and Fulkerson, G. D. (USN). "Forecasting the Human Resource Costs of Navy Weapons Systems," Defense Management Journal, Vol. 16, No. 2, 1980, pp. 6-11.
- Weiss, H. M. and Knight, P. A. Self Esteem, Information Search and Problem Solving Efficiency (Psych. Dept. Purdue), Org. Effectiveness Res., ONR Report 2, May, 1979.
- Weiss, Howard M. and Nowicki, Christine. Social Influences on Task Satisfaction: Model Competence and Observer Field Dependence, Purdue Univ. Psych. Dept., Report No. 5, ONR Contract, June 1980.
- Weiss, Howard M. and Rakestraw, T. L., Jr. Interaction of Social Influences and Task Experience on Goals, Performance and Performance Satisfaction. Purdue, Psych., ONR, Contract Report 4, May, 1980.
- White, Sam et al. Goal Setting, Evaluation Apprehension and Social Cues as Determinants of Job Performance and Satisfaction (Psych. U. of Wash.), ONR Contract with T. R. Mitchell, ONR TR 77-12, Sept. 1977.
- Young, H. H. Development of An Effective Planning and Evaluation Model for Air Force Maintenance Organizations, AFOSR Grant, 1980.

Young, L.E. et al. Relationship between Perceptions of Role Stress and Individual, Organizational and Environmental Variables.

Youngblood, S.A. et al. A Longitudinal Analysis of Military Recruit Attrition: The First 25 Months (Col of Bus Ad, U of SC) Marine Corps Study, Org Eff Res ONR TR-11, Feb '80.

Zager, R. Measuring Productivity, NY Times, 9/24/80, p A-31.

\*\*\*\*\*

The Ailing Defense Industrial Base: Unready for Crisis, Report of the Defense Industrial Base Panel of House Committee on Armed Services, 96th Congress, Second Session, Committee Reprint No. 29, 31 Dec 80.

AF Manpower, Personnel and Training, Research Plan (2 Vols), DCS/MP, Jan 81.

AFOSR Program Manager Handbook.

Annual Report to the President and Congress. National Center for Productivity and Quality of Working Life, 1977.

Annual Report to the President and Congress, Productivity Programs in the Federal Government, Feb 74, Vol II Case Studies, Joint Financial Management Improvement Program, OMB, GAO, GSA, Dept of the Treasury, June 75.

Army Regulation 5-4, Dept of the Army Productivity Improvement Program, HQ DDA, 18 Aug 76.

"AWOL in the Military: A serious and Costly Problem," Report to Congress by the Comptroller General, GAO, 30 Mar 79.

Civilians in DOD: Their Productivity and Compensation, Program Analysis and Evaluation - Manpower Resources, DOD, Nov 75.

"Development of Methods for Analysis of the Cost of Enlisted Attrition," General Research Corp, Contracted by Navy, Sep 77.

First Air Force Worldwide Productivity Conference Report, Oct. 3-5, 1978.

Alexandria, VA. Mimeo Directorate, Manpower and Organization, 12 Nov. 1978.

Improving Governmental Productivity: Selected Case Studies, National Center for Productivity and Quality of Working Life, Spring, 1977.

Improving National Productivity. Hearings, Sub Committee on Priorities and Economy in Government, Joint Econ. Comm., Aug. 25-27, 1972.

Measuring and Enhancing Productivity in the Federal Sector. A Study for the Joint Econ. Commission by Representatives of the Civil Service Comm., GAO and OMB, Aug. 4, 1972.

Military Productivity and Work Motivation - Conference Proceedings, Aug. 1978, NPRDC 78-15.

Military Productivity and Work Motivation, Conference Recommendations, NPRDC-79-6, Dec. 1978.

National Council on Family Relations Pre-Conf. Workshop "Quality of Family Life in The Military." Proceedings report Family Prog. (OP-152), Navy Dept., Wash., DC 20330, 1981.

Productivity and Anti-Inflation Policy - Hearings, SubComm. on Economic Stabilization, House Comm. on Banking and Urban Affairs, Sept. 14, 1978.

Productivity and the Quality of Working Life, QWL Personnel Bibliography No. 92, U. S. Civil Service Commission, 1978.

Productivity Hearing, Subcom. on Capital Investment and Business Opportunities of the House Comm. on Small Business, Aug. 15, 1978.

Productivity Hearings. Joint Economic Comm., June 5-6, 1979.

Productivity in the Changing World of the 1980's. The National Center for Productivity and QWL, Final Report, 1978.

Productivity in the Federal Government. A Staff Study, Joint Economic Committee, Productivity Report, OSD-FY 80, May 31, 1979.

Public Productivity Review, Vol. II, No. 4, Fall 1977, and Vol. I, No. 4, 1976 Special Issues, Center for Productive Public Management, John Jay Coll. of Criminal Justice, 445 W. 59th St., NY, NY 10019.

Report of Presentations, Leadership Symposium, July 30 - Aug. 5, 1978.

Meeting of the International Assoc. of Applied Psychology, Munich, (Key approach was F. E. Fiedler's-U. of Washington-Leadership Theories. 18 item LPC - Least Preferred Coworker - Scale Leader - member relations, Task Structure, Position Power, HCS- High Court Situations- and LCS - Low Control Situations).

Report on 15th International Conf. on Applied Military Psych., Jerusalem, (emphasis on Training, Attrition, Motivation, Special Groups).

7-11, May, 1979. Sponsored by ONR, London.

Vanguard AFSC (Booklet) Andrews AFB, June, 1979. Largely Philosophy of Gen. Alton D. Slay and staff.

Whitehouse Conference on Families, The Report - Listening to America's Families, Oct. 1980.

Whitehouse Conference on Families, A Summary - Listening to America's Families, Nov. 1980.

Whitehouse Conference on Families, -Families, Challenges and Responses, Delegate Workbook, Baltimore, Minneapolis, Los Angeles, 1979.

Working Papers of the AF Productivity Symposium, Maxwell AFB, AL 12-13 Feb., 1980. Issued by Office of Productivity and Research, HQ USAF and Directorate of Research and Analysis, LMDC (ATC) Maxwell AFB.

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